

ANY LEAF AT ALL learning springboards

These ideas will work with any leaf you find

Pappus

PSHE

Mindfulness, self-worth and connection. KS2 and KS3

Children's mental health and wellbeing is at the forefront of our thinking. These learning springboards aim to help you to meet learning targets whilst at the same time giving children some time in nature. Just 'being' for a few moments, regularly, (everyday if possible) in the natural world can be restorative.

If you have limited space or resources then even just looking at leaves collected from the grounds or their own home environments, and using them as learning resources inside the classroom, can be a useful alternative.

Access to the earth is important too, as there is much evidence now that children's immune systems are compromised if they do not access the beneficial microbes in soil. Some of the activities in these toolkits suggest simple growing tasks, inside and outside, and some are just about engaging with nature whilst learning and playing.

Taking learning time outside, in and with nature, builds over the weeks to have significant beneficial effects for the mental health and wellbeing of children and adults alike.

This is even more important for children living in urban areas and in social deprivation.

Science

Leaf chromatography: KS2 and KS3

This is a fun experiment that will provoke good discussion about photosynthesis and the colour of plants.

- Chlorophyll (green)
- Xanthophyll (yellow)
- Carotenoids (orange)
- Anthocyanins (red/purple)

Chromatography separates these colours out. You'll need to collect a range of leaves of different colours, so it's best to do this in **early autumn** when the leaves start to change colour.



Leaf chromatography

Maths

Leaf symmetry: KS2

This activity tests reasoning and maths vocabulary. Collect whole leaf specimens; sort them by shape, and then choose those with the most regular/symmetrical shapes.

- Can you identify any examples of reflective (line) or rotational symmetry?
- Are leaves *truly* symmetrical, or just *almost*?

Cut the leaves in half, glue to a piece of paper and draw an exact reflection of the remaining leaf; try to match colours and the edges of the leaf.

See also the **Leaf Mask** activity in Art and Design



Place value: KS2

This activity works well with leaves and any other natural resources such as conkers, cones, flowers, foraged fruit or twigs. If you're just using leaves, you'll need at least 4 very different looking varieties. Children work in teams of 4 – 6 and each team needs a generous collection of leaves or other natural resources. Each leaf or item is allocated a value, for example:

A stone = 1 A twig = 10 A leaf = 100 A conker = 1000

Each team chalks out columns for 1000s, 100s, 10s 1s. The activity leader starts by calling out a number and each team then represents that number on their grid, by placing the leaves in the appropriate columns. For example, 653 would require 6 leaves, 5 twigs and 3 stones. Did each team get the number right? Clear up and ask each team to take a turn to suggest a number for the other teams to create. Differentiate this activity by providing one, two, three or four digit numbers as appropriate.



Co-funded by the
Erasmus+ Programme
of the European Union

Literacy

Leaf poetry – understanding different forms of poetry and Haiku

Read to the class some examples of types of poetry, eg rhymes, acrostics and Haiku.

Clap the syllables to reinforce the rhythm of Haiku. (seventeen syllables, in three lines of five, seven, and five)

Print a set for each group of a range of poems some of which are NOT Haiku, so they can work out which ones meet the criteria.

Outside, each group collects a range of different coloured and shaped leaves.

Use this stimulus to suggest descriptive language, to write the Haiku.

An additional idea is to give the children paint shade cards to match the colours and use the name given by the paint company within the haiku if appropriate.

Each person reads their own Haiku to the group and /or the class.

Matso Basho by Hokusai © masterpiece-of-japanese-culture.com



Music

Grass whistle: KS2

Most grass species, if allowed to grow long, and are resources for a wide variety of activities.

- Tear off the leaf of a wide bladed grass and trap the bottom end at the lowest part of your pressed-together thumbs. Trap the top of the grass between the top of your thumbs. You should see a slight gap in the middle, between your thumbs. Place your lips to the gap and blow through the it to create a screech call.

Discuss how the sound is made, what vibrates to make the sound and experiment with different lengths and types of grass leaf to vary the pitch of the sounds they make.



Pattern symmetry: KS2

This is a physical activity as well as a mathematical one.

- In groups of 3-5, collect a wide variety of leaves, stones, twigs and other natural materials found in the grounds or locality.
- Mark out two parallel lines on the playground – or use a marked-out sports court.
- Each group sets up a base, made of a PE hoop, along one of the lines and stores their natural resources in this base location.
- Along the other parallel line, arrange a matching set of larger hoops or rope circles in which to create the symmetrical patterns.
- Each team chalks a line of symmetry within the pattern space or uses a straight stick, or two for rotational symmetry.
- Team members then take turns running to the pattern, taking a moment to look at it, running back to the resources store, choosing a new element, and running back to add this new element to maintain a symmetrical pattern.
- They then stay at the pattern base to see the following children add their pieces until all children have added to the pattern. The group then discuss and edit the pattern to get the best symmetrical outcome.
- Review all group patterns

INSERT PHOTO

Thirsty leaves: KS2

Collect a wide variety of different leaves – look for contrasting shapes and sizes. Give each child a leaf and a thin marker pen. Ask the class to discuss

- What role do leaves play on a plant?
- Where do they get their water from?
- How much water does a leaf need each day?

Use the marker pen to trace over the top of all the 'veins' children can find in their leaves. Use rulers or thin string to measure the total length of all the veins in the leaf. Do bigger leaves *always* have more veins? Why (or why not)?



ADD - VEG ETABLE ORCHESTRA HERE

Art and Design Technology

Leaf collection shade cards: KS2

Collect a range of leaves, then order them from lightest to darkest tones (allowing colour blind children to participate equally). Children with 'normal' sight may be helped to do this by slightly squinting at the leaves to see the differences. Another way to do this is to photograph the sets of leaves in black and white to help children see tone rather than colour.



- Mix paint colours to match the tones or colours.
- You can also use DIY store paint swatch cards to match colours/tones as closely as possible before mixing paint. These colour swatches also show gradations of tone very effectively.

Hapa Zome printing

Hapa Zome is the art of creating prints using the natural dyes released when a plant is 'bashed'. Plants with a high water content and strong colours work best, as they will leach into the medium you're using. Stems and petals work equally well.

- Trap the plant part between a piece of folded cloth, and place another piece of cloth, or a piece of cardboard, on top of that.
- Pound the cardboard or cloth with a mallet or piece of wood. Gently lift to examine the print being made.

When the fabric is finally unfolded, an imprint of the plant part is left behind on the cloth.



Hapa Zome

Add photo

Non-standard measures: KS2

Any leaves can be used as 'non-standard' units of measure. Collect at least ten of the same type of leaf, as similar in size as possible. Line them up (side to side or top to bottom, your choice) and using a metre rule, calculate the **mean** height or width of **one** leaf. That's now your non-standard unit.

- Ask children to estimate heights and distances using your leaf unit. How easy is it to be accurate? Use 'real' measuring tools (e.g. tape measure, trundle wheel, clinometer) to check children's accuracy.
- Why was a standard unit of measurement created? How many leaves do children think were on the tree or plant their non-standard unit came from? How can you find out for sure?



Measuring irregular shapes: KS2

This task gives children some active time outside in the natural world whilst gathering leaves for a table based task. Incidental observations about the variety of leaf shapes, colours and textures is an added bonus.

Use the largest leaves you can find, starting with simple leaf shapes and progressing to more complicated shapes.

Start by drawing around the leaf onto squared paper.

- Calculate the area of the leaf by counting the squares.
- Measure the perimeter using a length of thin string and a ruler.
- Add translation of the shape to the exercise, for simpler leaf shapes

Are leaves *truly* symmetrical, or just *almost*? This generates great conversations and mathematical thinking.

Leaf logic: KS2 and KS3

You can use any leaf for this, especially in Autumn when there is a wide variety of colours. Use Venn diagrams, and Carol diagrams for sorting. Depending on the age of the children, suggest labels for the columns and rows, or groups of children could set challenges for one another to guess the row and column labels. Check out the Creative Star website for more leaf logic ideas (and much, much more besides!)

<https://creativestarning.co.uk/maths-outdoors/leaf-logic/>



Co-funded by the
Erasmus+ Programme
of the European Union

Green Man leaf masks

Cut out simple thin cardboard masks, and attach string or elastic to the ends. Place differently sized strips of double sided sticky tape to the front of the mask and scavenge for beautiful leaves and flowers to stick on. More ideas for an art focus:

- Make a symmetrical mask- maths link
 - Choose rainbow coloured leaves, or shades of one colour
- Use clay to sculpt a Green Man face on a tree trunk. Decorate the face using the leaves you've collected. Can children use their resources to create different 'expressions' on their Green Man faces?



Green Man myths

